

Craniosacral Therapy for Pediatric Neurodevelopmental Disorders: A Critical Review

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Abstract

Craniosacral therapy (CST) was founded as an ancient manual therapy technique to evaluate and treat altered static and dynamic skull bone mobility in relation to sacrum during respiration. Although neurophysiological basis for pediatric neurodevelopmental disorders (PND) is clear, there is still paucity in evidence on cranial mechanical aspects in these disorders. This critical review was aimed to provide an update on the literature by synthesizing evidence for CST in PND. Limited but convincing evidence suggested the application of CST in children and adolescents with attention-deficit hyperactivity disorder, and in few developmentally delayed newborns. There is need for more studies and high quality clinical trials in this area.

Keywords: Craniosacral therapy; Manual therapy; Pediatric neurodevelopmental disorders.

Introduction

Craniosacral therapy (CST) was founded as an ancient manual therapy technique to evaluate and treat altered static and dynamic skull bone mobility in relation to sacrum during respiration which was termed as craniosacral rhythm (CSR).[1] The concept underlying the basis of application of CST is the hypothetical rationale in altered CSR thereby influencing cerebrospinal fluid (CSF) dynamics throughout the central nervous system (CNS).[2] This altered CSF dynamics in turn leads to disturbed "blood-brain barrier" which not only predisposes brain cells to auto-immune injury but also exacerbates an existing CNS structural and/or functional neuropathology.[3]

Recent systematic reviews provide limited but convincing evidence in terms of growing

number of clinical trials on CST showing clinical benefits when administered alone,[4] or as part of comprehensive osteopathic manipulative medicine (OMM).[5] However, the biological plausibility, assessment reliability and clinical effectiveness of CST was established albeit by studies with low levels of evidence.[6]

Few studies previously documented evidence for reliability of assessment of cranial bone motion[7,8] whilst few other studies questioned the scientific basis of their findings. Although neurophysiological basis for pediatric neurodevelopmental disorders (PND) is clear, there is still a controversy-led paucity in evidence on cranial mechanical aspects in these disorders.[9] This critical review was aimed to provide an update on the literature by synthesizing evidence for CST in PND since there is anecdotal evidence for influence of

craniosacral respiration on cytological structure and function.[10]

Earliest reports of use of CST in children with developmental disorders include the description of of craniosacral examination findings by Upledger[11] and the relationship between disturbed craniosacral mechanics and symptomatology of 1,250 newborns was given by Frymann.[12]

Gillespie reported a case study demonstrating corrective effects of CST in a child with attention-deficit hyperactivity disorder (ADHD)[13] while Field *et al* showed thatcraniofacial massage therapy had better effects compared to relaxation therapy in 10 adolescents with ADHD.[14]

CST had positive effects on intracranial pressure and cranial bone motion,[15] mechano-electric patterns[16] and hemoliquorodynamically induced slow-wave oscillations,[17] all of which had been shown to directly or indirectly influence CNS structure-function inter-relationship during normal development and possibly now in neurodevelopmental disorders (NDD) in pediatric population.

There is need to integrate CST into entry-level professional curricula[18] and it is an imperative professional responsibility[19] controlled by Nature rather than an academically nurtured hands-on skill.

Conclusion

Limited but convincing evidence suggested the application of CST in children and adolescents with attention-deficit hyperactivity disorder, and in few developmentally delayed newborns. There is need for more studies and high quality clinical trials in this area.

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